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AN EVALUATION OF THE EFFECTIVENESS OF MNEMONIC DEVICES AS AIDS TO STUDY.

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THE PROBLEM WAS TO DISCOVER WHETHER OR NOT HIGH SCHOOL FRESHMEN STUDENTS WHO DID NOT USE MNEMONICS COULD PROFIT BY THEIR USE AND WHETHER THE MNEMONICS SHOULD BE SUPPLIED TO THE STUDENT OR HE SHOULD BE TAUGHT TO CONSTRUCT HIS OWN. USE OF MNEMONIC DEVICES LED TO A MARKED IMPROVEMENT IN TEST SCORES. ALSO, ANY TYPE OF MNEMONIC DEVICE SUPPLIED BY THE EXPERIMENTER WAS FOUND TO BE EFFECTIVE IN RAISING TEST GRADES, AND WAS BETTER THAN REQUIRING THE STUDENT TO CONSTRUCT HIS OWN MNEMONIC. THIS RESULT RAISED THE QUESTION OF WHETHER OR NOT ALL SUITABLE TEXTBOOKS SHOULD CONTAIN MNEMONICS. THE AUTHOR SUGGESTED THE USE OF MNEMONICS MAY DECREASE IN EFFECTIVENESS AS THE NUMBER OF MNEMONICS USED BY ANY ONE STUDENT INCREASES. FURTHER RESEARCH WAS SUGGESSTED TO DETERMINE THE MECHANISMS BY WHICH MNEMONICS WORK. (TC)

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Cooperative Research Project No. 5-8438

Gerald R. Miller

University of Texas at El Paso

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TABLE OF CONTENTS

List of tables.....3

Problem.....4

Objectives.....5

Related research.....6

Procedure.....8

Results and conclusions.....11

Implications.....17

References.....19

Appendix.....20

LIST OF TABLES

Table 1: Counterbalancing schema.....12

Table 2: Analysis of variance of learning tests.....14

Table 3: Means and standard deviations of learning treatment conditions.....14

Table 4: Analysis of variance of retention tests.....16

Table 5: Means and standard deviations of retention treatment conditions.....16

PROBLEM

Many textbooks contain an outline type summary at the end of each chapter. The purpose of these summaries is to point out and reexpose the student to the most important associations which should be retained from the chapter. This study suggests that the effectiveness of these summaries could be improved by presenting them within the framework of mnemonic devices. The word mnemonic has no very precise meaning but as used here it will designate only the use of one set of associations to facilitate the recall of another set. For instance, remembering the highly integrated trigram "Rbt." may aid in remembering that the three membranes in the cochlea are Reissner's, Basilar, and Tectorial.

To some people, adding these extraneous associations may seem as though it would only increase the amount to be learned. To others, it may seem rather like cheating to use mnemonics in place of good honest straightforward memory. Some authors may object to having their lucid prose contaminated by extraneous associations, but many good students use mnemonics even if educators would prefer to think that they do not. The problem is to discover whether students who do not use mnemonics could profit by their use and whether the mnemonics should be supplied to the student or he should be taught to construct his own.

OBJECTIVES

The project was conceived of as a pilot study with the main objective being to determine whether mnemonic devices are an important enough aid to learning and long-term retention to warrant a large scale experimental study of all types of mnemonics and the associative mechanisms they involve. The specific objectives were to answer the following questions:

Objective 1. -- Do students who normally use mnemonics make higher test grades than those who do not?

Objective 2. -- Do mnemonics supplied to the student who does not normally use them raise test grades?

Objective 3. -- Is it worthwhile to teach students who do not normally use mnemonics how to construct their own mnemonic devices?

Objective 4. -- Is one type of mnemonic device universally more effective than any other type?

This study tested the three basic types of mnemonic devices, which fit the definition of "mnemonic" that was stated earlier. TYPE 1 mnemonics are constructed by listing in some order the points to be recalled and then finding a word which rhymes with the number of the point and has some associative relation to the point to be remembered. For instance, if point number five in the causes of World War I is the buildup of sea power, we might

use the word "dive" as a mnemonic because "dive" rhymes with five and is associatively connected to water which is related to sea power. TYPE 2 mnemonics are constructed by taking the first letter of the most important word of each point and constructing a sentence such that the first letters of the words of the sentence are the same as the first letters of the important words to be remembered. For instance, if one were to construct a type 2 mnemonic to aid in remembering the three choclear membranes, a possible sentence would be "Robert beats Tessie." TYPE 3 mnemonics are constructed by making words from the first letters of the most important word of each point. The mnemonic "Rbt." described earlier is an example of a type 3 mnemonic.

Objective 5. -- Is material learned with the aid of mnemonic devices retained as well or better than material learned without the use of mnemonics?

Although the planned retention period for this study was one month, it was necessary to use a 6-week retention period.

RELATED RESEARCH

There has been little research or even mention of mnemonic devices for the last 35 years. Heidbreder (1947), Guthrie (1950), and McGeoch (1952) mention mnemonics but describe no experiments related to the retention of textbook material. Guilford's (1927) unfavorable comments seem

to have discouraged research on mnemonics until Adams' (1962) description of an experiment using a one-sentence mnemonic to aid in the study of a whole textbook section. Adams' sentence was to facilitate the learning of the headings within the section. His results were negative but this is hardly surprising since the mnemonic was virtually unrelated to specific information in the textbook.

The mnemonics which have been described in the scientific literature and in popular books, such as Lyon (1917) and Nutt (1941) designed to "increase memory power", seem to fall into two general classes: one involves using the first letters of words to be learned, the other involves overlearning as ordered set of nouns to which the material to be learned is associated (usually by visual images).

There are two ways of conceptualizing how mnemonic devices operate as associative mechanisms; both of which involve taking some advantage of Jost's Law (Jost, 1897) that older associations lose strength more slowly than new ones of the same strength. A mnemonic may be thought of as a translation of new material into the pattern of some previously learned material (lyon); particularly in the latter type of mnemonic described above. Provided the translation rules are not forgotten, the new material should be forgotten more slowly because it is connected to the older more slowly decaying associations which had been learned previously.

TITLE: AN EVALUATION OF THE EFFECTIVENESS OF MNEMONIC DEVICES AS AIDS TO STUDY

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EL PASO, TEXAS

PROJECT NUMBER: 5-8438

DURATION: MARCH 1, 1966 TO FEBRUARY 28, 1967

SUMMARY

BACKGROUND

Many textbooks contain an outline type summary at the end of each chapter. The purpose of these summaries is to point out and reexpose the student to the most important associations which should be retained from the chapter. This study suggests that the effectiveness of these summaries could be improved by presenting them within the framework of mnemonic devices. The word mnemonic has no very precise meaning but as used here it will designate only the use of one set of associations to facilitate the recall of another set. For instance, remembering the highly integrated trigram "Rbt." may aid in remembering that the three membranes in the cochlea are Reissner's, Basiler, and Tectorial.

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The project was conceived of as a pilot study with the main objective being to determine whether mnemonic devices are an important enough aid to learning and long-term retention to warrant a large scale experimental study of all types of mnemonics and the associative mechanisms they involve. The specific objectives were to answer the following questions:

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Objective 5. -- Is material learned with the aid of mnemonic devices retained as well or better than material learned without the use of mnemonics?

Although the planned retention period for this study was one month, it was necessary to use a 6-weeks retention period.

PROCEDURE

The basic design was a Treatments x Subjects design

using six treatment conditions, six passages and 46 subjects.

The six treatment conditions were as follows:

Treatment Condition 1. -- Each of six groups of subjects was given one of the six passages to study and was then tested with a short essay test two days later. The subjects were told nothing about the purpose of the test or how to study the material since the purpose of this condition was to discover which students were already using mnemonics and to compare their grades with students who did not normally use mnemonics.

Treatment Condition 2. -- Each of the six groups was given one of the six passages and an outline of the passage within the framework of a type 1 mnemonic device.

Treatment Condition 3. -- This condition was similar to treatment condition 2 except that the supplied mnemonics were type 2.

Treatment Condition 4. -- This condition was similar to treatment conditions 1 and 2 except that the supplied mnemonics were type 3.

Treatment Condition 5. -- Each of the six groups was given one of the six passages and told to study the passages by constructing their own type 2 mnemonics.

Treatment Condition 6. -- This condition was similar to treatment condition 5 except that the subjects were told to study the passages by constructing their own type 3 mnemonics.

The six passages were adapted from a college text book on world history by Coulton and Palmer (1956). Each passage was a more or less complete unit of close to 1000 words. The topics of the passages were as follows: some causes leading to World War I, the spirit of eighteenth century philosophy, imperialism in China, the administration and government of Louis XIV, the outcome of the Peace of Westphalia, and the causes and effects of the industrial revolution. The passages were chosen because they all contained about the same number of words and the same number of important points.

The subjects were all high school freshmen at Burgess High School in El Paso, Texas. The study started with a total of 66 subjects, eleven in each group, but, because of absences, complete data was available for 46 subjects in the learning experiment and 40 subjects for the retention experiment.

Although it was not true, the subjects were told that their grades on the six tests would in part determine their grades for the history class in which the tests were given.

The tests were composed of one question for each passage. A complete answer to the question required that the subject remember all six points in each passage. The tests were graded by a regular grader from the history department of the University.

The grader had no contact with either the person who wrote the passages, the persons who constructed the mnemonics, the teacher who administered the tests, or the students who took the tests. The tests were graded by test session rather than treatment conditions so the grader had no idea what, if any, type of mnemonic had been used by the subjects.

The tests were graded on a seven point scale from 0 to 6. This grading was fairly mechanical since one score point was given for each major point from the passage.

The retention tests, given six weeks after the learning tests, followed the same pattern as the learning tests, used the same questions and were graded in the same manner. There was no study or review of the material prior to the retention tests.

The Appendix of the Final Report contains the passages, the three types of mnemonic devices supplied with each passage, and the test questions.

Although the analysis of variance on the data treated

the data as a regular Treatments x Subjects design the experiment required a rather complicated counterbalancing scheme. The effects of order, passages, and previous experience with mnemonics had to be counterbalanced.

A simple 6 x 6 latin square involving passages, treatment conditions, and test sessions would have accomplished this if it had not been for the fact that all subjects had to take treatment condition 1 in test session 1 (since the purpose of treatment condition 1 was to discover which students already used mnemonics without their use being suggested) and all subjects had to take treatment conditions 5 and 6 in either test session 5 or 6 (because the subjects needed to have some experience with the type of mnemonic they were supposed to construct).

The counterbalancing scheme s given in Table 1 of the Final Report.

RESULTS AND CONCLUSIONS

Objective 1. Do students who normally use mnemonics make higher test grades than those who do not? This question was based on the assumption that somewhere near half of the subjects would to some degree use mnemonics. However, only three of the original 66 subjects claimed to have used any sort of mnemonic device in studying for the tests

of treatment condition 1. No conclusion can be drawn from such a small sample of mnemonics users. If this percentage is representative of the general population of students, it can be concluded that most students who obtain good grades do so without the help of mnemonics.

Objective 2. Do mnemonics supplied to the student who does not normally use them raise test grades? The answer to this question requires a comparison of treatment condition 1 with treatment conditions 2, 3, and 4. An overall analysis of variance of the difference between all six treatments showed a highly significant difference ($P < .001$, $F=9.81$, $df=5,225$). Since the overall analysis of variance was significant, the difference between individual means was tested by the Duncan Multiple Range F Test. According to the Duncan test, treatment conditions 2, 3, and 4 were all significantly superior to treatment condition 1. ($P < .01$) Thus, any type of mnemonic supplied by the experimenter is effective in raising test grades.

Objective 3. Is it worthwhile to teach students who do not normally use mnemonics how to construct their own mnemonic devices? The Duncan Multiple Range F Test showed that both treatment conditions 5 and 6 were significantly superior to treatment condition 1 ($P < .01$) which means that when stu-

dents study by constructing their own mnemonics they obtain higher test scores than if they use no mnemonics. Further comparisons, however, showed that conditions 2, 3 and 4 were all significantly superior to treatment conditions 5 or 6 ($P < .01$) which means that any type of mnemonic which is supplied by the experimenter is better than requiring the student to construct his own mnemonics. It may be that some of the subjects did not bother to construct their own mnemonics when they were told to do so. No check was made on this, however, because it was thought that all students would say that they complied with instructions whether they did or not. It may also be that the mnemonics that the subjects constructed themselves were simply not as good as the ones that the experimenter supplied because the subjects did not have as much time to spend on construction as the experimenter.

Objective 4. Is one type of mnemonic device universally more effective than any other type? According to the Duncan Multiple Range F Test, there were no significant differences between treatment conditions 2, 3, and 4 and no significant difference between treatment conditions 5 and 6, which means that all three types of mnemonic devices are equally effective.

Objective 5. Is material learned with the aid of mnemonic devices retained as well or better than material learned without the use of mnemonics? An overall analysis of variance of the difference between all six treatments failed to reach significance for the retention tests ($F = 1.53$, $df = 5,195$). Since the overall F ratio is not significant, it is not legitimate to use the Duncan Multiple Range F Test to test the significance between individual means. Even though they are not large enough to be significant the pattern of differences for the retention test are very similar to the pattern for the learning tests.

As a pilot study this experiment showed that mnemonic devices can lead to great improvement in test scores (77 percent in one case) and thus deserve further study. It did not, however, shed any light on the mechanisms by which mnemonics work or why the effects were not more lasting. It may be that if a student uses a large number of mnemonics he would become overloaded with mnemonics and they would lose their effectiveness. It may be that if the student is allowed to periodically review his mnemonics the effect would be more lasting. The answer to these questions would require a large long term experiment and virtually complete

control over some sector of curriculum, but the results of the pilot suggest that such an experiment would be justified.

BIBLIOGRAPHY

There are nine references listed in the final report.

PUBLICATIONS

None as yet.

PRECEDING PAGE MISSING

Any type of mnemonic can be thought of as increasing the density of associations between va ious parts of the material by adding mediators (Jenkins, 1959) which involve older associations. It seems probable that the more associative connections which exist between any two parts of the material the less likely that all associative pathways will decay to a point below the threshold of recall.

PROCEDURE

The basic design was a Treatments x Subjects design using six treatment conditions, six passages, and 46 subjects.

The six treatment conditions were as follows:

Treatment condition 1. -- Each of six groups of subjects was given one of the six passages to study and was then tested with a short essay test two days later. The subjects were told nothing about the purpose of the test or how to study the material since the purpose of this condition was to discover which students were already using mnemonics and to compare their grades with students who did not normally use mnemonics.

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The six passages were adapted from a college textbook on world history by Palmer and Colton (1956). Each passage was a more or less complete unit of close to 1000 words. The topics of the passages were as follows:

Passage A: some causes leading to World War I

Passage B: the spirit of eighteenth century philosophy

Passage c: imperialism in China

Passage D: administration and government of Louis XIV

Passage E: outcome of the Peace of Westphalia, 1648

Passage F: causes and effects of the industrial revolution.

The passages were chosen because they all contained about the same number of words and the same number of important points.

The subjects were all high school freshmen at Burgess High School in El Paso, Texas. The study started with a total of 66 subjects, eleven in each group,but, because

of absences, complete data was available for 46 subjects in the learning experiment and 40 subjects for the retention experiment.

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The tests were graded on a seven point scale from 0 to 6. This grading was fairly mechanical since one score point was given for each major point from the passage.

The retention tests, given six weeks after the learning tests, followed the same pattern as the learning tests, used the same questions and were graded in the same manner. There was no study or review of the material prior to the retention tests.

The Appendix contains the passages, the three types of mnemonic devices supplied with each passage, and the test questions.

Although the analysis of variance on the data treated the data as a regular Treatments x Subjects design, the experiment required a rather complicated counterbalancing schema. The effects of order, passages, and previous experience with mnemonics had to be counterbalanced.

A simple 6 x 6 latin square involving passages, treatment conditions, and test sessions would have accomplished this if it had not been for the fact that all subjects had to take treatment condition 1 in test session 1 (since the purpose of treatment condition 1 was to discover which students already used mnemonics without their use being suggested) and all subjects had to take treatment conditions 5 and 6 in either test session 5 or 6 (because the subjects needed to have some experience with the type of mnemonic they were supposed to construct).

The counterbalancing schema is given in Table 1.

RESULTS AND CONCLUSIONS

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TABLE 1

COUNTERBALANCING SCHEMA

TYPE OF MNEMONIC	NONE	TYPE 1 (SUPPLIED)	TYPE 2 (SUPPLIED)	TYPE 3 (SUPPLIED)	TYPE 2 (OWN)	TYPE 3 (OWN)
G1	01 = A	02 = B	03 = C	04 = D	05 = E	06 = F
G2	01 = B	04 = C	02 = D	03 = E	06 = F	05 = A
G3	01 = C	03 = D	04 = E	02 = F	05 = A	06 = B
G4	01 = D	02 = E	03 = F	04 = A	06 = B	05 = C
G5	01 = E	04 = F	02 = A	03 = B	05 = C	06 = D
G6	01 = F	03 = A	04 = B	02 = C	06 = D	05 = E

01 = 06 = THE ORDER (OR SESSIONS) IN WHICH THE CONDITIONS WERE PRESENTED.

A = F = THE PASSAGE USED.

sort of mnemonic device in studying for the tests of treatment condition 1. No conciusions can be drawn from such a small sample of mnemonics users. If this percentage is representative of the general population of students, it can be concluded that most students who obtain good grades do so without the help of mnemonics.

Objective 2. Do mnemonics supplied to students who do not normally use them raise test grades? The answer to this question requires a comparison of treatment condition 1 with treatment conditions 2, 3, and 4. An overall analysis of variance of the differences between all six treatments showed a highly significant difference ($p < .001$, $F = 9.81$, $df = 5,225$). Since the overall analysis of variance was significant (see Table 2), the differences between individual means (see Table 3) was tested by the Duncan Multiple Range F Test. According to the Duncan test, treatment conditions 2, 3, and 4 were all significantly superior to treatment condition 1 ($p < .01$). Thus, any type of mnemonic supplied by the experimenter is effective is raising test grades.

Objective 3. Is it worthwhile to teach students who do not normally use mnemonics how to construct their own mnemonic devices? The Duncan Multiple Range F Test showed that both treatment conditions 5 and 6 were significantly superior to treatment condition 1 ($p < .01$) which means that when students study by constructing their own mnemonics they obtain higher

TABLE 2

ANALYSIS OF VARIANCE OF LEARNING TESTS

SOURCE	DF	MS	F
TREATMENTS	5	23.2	9.81*
ERROR	225	2.36	

*= .001

TABLE 3

MEANS AND STANDARD DEVIATIONS OF LEARNING TREATMENT CONDITIONS

TREATMENT CONDITIONS	1	2	3	4	5	6
M	2.196	3.913	3.739	3.717	2.738	2.652
SD	1.53	1.97	2.18	2.00	1.94	1.98

test scores than if they use no mnemonics. Further comparisons, however, showed that conditions 2, 3, and 4 were all significantly superior to treatment conditions 5 or 6 ($p < .01$) which means that any type of mnemonic which is supplied by the experimenter is better than requiring the student to construct his own mnemonics. It may be that some of the subjects did not bother to construct their own mnemonics when told to do so. No check was made on this, however, because it was thought that all students would say that they complied with the instructions whether they did or not. It may also be that the mnemonics which the subjects constructed themselves were simply not as good as the ones that the experimenters supplied because the subjects did not have as much time to spend on construction as the experimenters.

Objective 4. Is one type of mnemonic device universally more effective than any other type? According to the Duncan Multiple Range F Test, there were no significant differences between treatment conditions 2, 3, and 4, and no significant difference between conditions 5 and 6, which means that all three types of mnemonics were equally effective.

Objective 5. Is material learned with the aid of mnemonic devices retained as well or better than material learned without the use of mnemonics? An overall analysis of variance of the difference between all six treatments failed to reach significance for the retention tests ($F = 1.53$, $df = 5,195$). Since this F ratio is not significant (see Table 4),

TABLE 4

ANALYSIS OF VARIANCE OF RETENTION TESTS

SOURCE	DF	MS	F
TREATMENTS	5	2.80	1.53
ERROR	195	1.83	

TABLE 5

MEANS AND STANDARD DEVIATIONS OF RETENTION TREATMENT CONDITIONS

TREATMENT CONDITIONS	1	2	3	4	5	6
M	.975	1.675	1.550	1.650	1.300	1.475
SD	.93	1.57	1.41	2.04	1.41	1.70

it is not legitimate to use the Duncan Multiple Range F Test to test the significance of differences between individual means. Even though they are not large enough to be significant, the pattern of differences for the retention tests is very similar to the pattern for the learning tests (compare Tables 3 and 5).

IMPLICATIONS

There are a number of implications for further research based on the conclusions reached in this study. Since mnemonic devices, used as they were in this experiment, led to such a marked improvement (77 percent in one case) in test scores, the question is raised as to whether all suitable textbooks should not contain mnemonics. If textbook publishers could be persuaded that supplying students with mnemonic devices is a good idea, what would be the long-term result of such study aids? The results of such a step would ultimately depend on just how mnemonics worked to cause the improvements noted in this experiment. If the results obtained here are due to some sort of novelty of isolation effect, then mnemonics should decrease in effectiveness as the number of mnemonics used by any one student increased. In other words, the student would become so overloaded with mnemonics that they could not sufficiently isolate the material to be retained. One might also expect that prohibitively large amounts of associative interference would begin to develop among a large number of

mnemonics since they are all rather similar. If, on the other hand, mnemonics work by increasing the density of associative connections between the cue stimulus and the material to be recalled, there is no more arguement against using a large number of mnemonic devices than there is against learning a large amount of study material. No one has ever seriously suggested that the more you learn, the harder it is to remember everything that you know.

The other important question raised by the pilot study is why the mnemonics led to no siginificant improvement in long-term retention. Comparing the pattern of means in Table 3 with the pattern in Table 5 suggests that there actually was some improvement in long-term retention and if there were some sort of Bayesian order statistics this might be proved, but there is at present no statistical technique more sensitive than the one that was used.

The answers to all these questions could come from a large long-term experiment which would require students to learn large amounts of material and test retention at a variety of retention intervals. One problem in designing such an experiment would be how to prevent students from using mnemonics when they were not supposed to, after they discovered how effective they can be. Another problem would be gaining enough control over the education of such a large number of students, but the results of this pilot suggest that such an experiment would be justified.

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PASSAGE A: SOME CAUSES LEADING TO WORLD WAR I

Political diagnosticians, from Richelieu to Metternich, had long thought that an effective union of Germany would revolutionize the relationships of Europe's peoples. After 1870 the Germans entered upon their industrial revolution. Manufacturing, finance, shipping, population grew phenomenally. In steel, by 1900 Germany produced more than France and Great Britain combined. Germans felt that they needed and deserved a "place in the sun," by which they vaguely meant some kind of acknowledged supremacy like that of the British. Neither the British nor the French, the leaders of modern Europe since the seventeenth century, could share wholeheartedly in such German aspirations. The French had the chronic grievance of Alsace and Lorraine, annexed to Germany in 1871. The British as the years passed saw German salesmen appear in their foreign markets, selling goods often at lower prices and by what seemed ungentlemanly methods; they saw Germans turn up as colonial rivals in Africa, the Near East, and the Far East; and they watched other European states gravitate into the Berlin orbit, looking to secure or advance their interests.

After 1871 Bismarck feared that his new German Empire might be torn to pieces in another European war. He therefore followed, until his retirement in 1890, a policy of peace. We have seen him as the "honest broker" at the Berlin Congress of 1878, helping to adjudicate the Eastern Question, and again offering the facilities of Berlin in 1885 to regulate African affairs. To isolate France, divert it from Europe, and keep it embroiled with Britain, he looked with satisfaction on French colonial expansion. He took no chances, however; in 1879 he formed a military alliance with Austria-Hungary, to which Italy was admitted in 1882. Thus was formed the Triple Alliance, which lasted until the First

World War. Its terms were, briefly, that if any member became involved in war with two or more powers its allies should come to its aid by force of arms. To be on the safe side, Bismarck signed a "re-insurance" treaty with Russia also; since Russia and Austria were enemies (because of the Balkans), to be allied to both at the same time took considerable diplomatic finesse. After Bismarck's retirement his system proved too intricate, or too lacking in candor, for his successors to manage. The Russo-German agreement lapsed. The French, faced by the Triple Alliance, soon seized the opportunity to form their own alliance with Russia, the Dual Alliance of 1894. In its time this was regarded as politically almost impossible. The French Republic stood for everything radical, the Russian Empire for everything reactionary and autocratic. But ideology was thrown to the winds, French capital poured into Russia, and the czar bared his head to the Marseillaise.

By 1894, the Continent was divided into two opposed camps, the German-Austrian-Italian against the Franco-Russian. For a time it seemed that this rigid division might soften. Germany, France and Russia co-operated in the Far Eastern crisis of 1895. All were anti-British at the time of Fashoda and the Boer War. The Kaiser, William II, outlined tempting pictures of a Continental league against the global hegemony of England and her empire.

Much depended on what the British would do. They had long prided themselves on a "splendid isolation," going their own way, disdaining the kind of dependency that alliance with others always brings. Fashoda and the Boer War came as a shock. British relations with France and Russia were very bad. Some in England, therefore thought that a better understanding with Germany was to be sought. Arguments of race, in this exceedingly race-conscious age, made Englishmen and Germans feel akin. But politically it was hard to co-operate. In 1898 the Germans decided

to build a navy.

British sea power for two centuries had been all too successful. The American Admiral Mahan, teaching at the Naval War College, and taking his examples largely from British history, argued that sea power had been the foundation of Britain's greatness, and that in the long run sea power must always choke off and ruin a power operating on the land. Nowhere were Mahan's books read with more interest than in Germany. The German naval program, mounting rapidly after 1898, in a few years became a source of concern to the British, and by 1912 was felt as a positive menace. The Germans insisted that they must have a navy to protect their colonies, secure their foreign trade, and "for the general purposes of their greatness." The British held with equal resolution that England, as a densely populated industrial island, dependent even for food upon imports must at all costs control the sea in both peace and war. They adhered stubbornly to their traditional policy of maintaining a navy as large as the next two combined. The naval race led both sides to enormous and increasing expenditures. In the British it produced a sense of profound insecurity, driving them as the years passed ever more inescapably into the arms of Russia and France.

Slowly and cautiously the British emerged from their diplomatic isolation. In 1902 they formed a military alliance with Japan against their common enemy, Russia. In 1904 the British and French governments agreed to forget the accumulated bad feeling of the preceding twenty-five years. The French recognized the British occupation of Egypt, and the British recognized the French penetration of Morocco. They also cleared up a few lesser colonial differences, and agreed to support each other against protests by third parties. There was no specific alliance;

neither side said what it would do in the event of war; it was only a close understanding, an entente cordiale. The French immediately tried to reconcile their new friend to their ally, Russia. After defeat by Japan the Russians proved amenable. The British, increasingly uncertain of German aims, proved likewise willing. In 1907 Britain and Russia, the inveterate adversaries, settled their differences in an Anglo-Russian Convention. In Persia, the British recognized a Russian sphere of influence in the north, the Russians a British sphere in the south and east. By 1907 England, France, and Russia were acting together. The older Triple Alliance faced a newer Triple Entente, the latter somewhat the looser, since the British refused to make any formal military commitments.

MNEMONICS: TYPE #1

The first step in the use of mnemonics is to read the selection and write down the main points to remember. In this selection we would want to remember these points:

1. Union of Germany
2. Industrial revolution in Germany
3. Triple alliance formed between Austria, Hungary, and Italy
4. Dual alliance formed between France and Russia
5. Build up of sea power by Germany with ideas from Admiral Mahan
6. Triple entente was formed by England, France, and Russia

To make a mnemonic, we need to first picture the situation in our mind and decide on a symbol rhyming with the corresponding number of the point we want to remember. For example:

1. Union of Germany

   PICTURE: All of Germany coming together

   NUMBER: 1

So we can say:

1. Come

The word "come" will remind us of the coming together or union of Germany.

Next is:

2. Industrial revolution in Germany

PICTURE: New ideas in Germany

NUMBER: 2

So we can say:

2. New

The word "new" makes us think of the new ideas in Germany and we can remember the industrial revolution.

Our third point is:

3. Triple alliance formed between Austria, Hungary, and Italy

PICTURE: Alliance formed by three countries

NUMBER: 3

So we can simply say:

3. 3 (Three)

The word "three" will remind us of the three countries, Austria, Hungary, and Italy that formed the triple alliance.

Our next point is:

4. Dual alliance between France and Russia

PICTURE: France and Russia getting together

NUMBER: 4

So we can say:

4. Rapport

France and Russia established "rapport" and formed the dual alliance.

Next is:

5. Build up of sea power by Germany with ideas from Admiral Mahan

PICTURE: Boats, submarines, water

NUMBER: 5

So we can say:

5. Dive

The word "dive" will remind us of the sea and we can remember that Germany built up her sea power with ideas from Admiral Mahan.

Our last point is:

6. Triple entente was formed -- England, France, and Russia

PICTURE: 3 countries joining in a union

NUMBER: 6

So we can say:

6. Mix

The word "mix" will remind us of three countries "mixing" or joining together and forming the triple entente.

See if you can remember the main points of the selection by these words:

1. come
2. new
3. three
4. rapport
5. dive
6. mix

MNEMONICS: TYPE #2

To make this type of mnemonic, we first need our main points:

1. Union of Germany
2. Industrian revolution in Germany
3. Triple alliance formed between Austria, Hungary, and Italy
4. Dual alliance formed between France and Russia
5. Build up of sea power by Germany with ideas from Admiral Mahan
6. Triple entente was formed by England, France, and Russia

Next we need to go through our main points and select the main word in each:

1. Union
2. Revolution
3. Triple
4. Dual
5. Sea
6. Entente

Then we take the first letter of each word:

U, R, T, D, S, E

With these letters, we can construct a sentence using words beginning with these letters and adding small words if necessary:

Teachers Utter Discouraging Remarks Every Session

We can then remember the sentence, recall the key words, and remember the main points of the selection.

See if you can remember the main points of this selection from this sentence:

Teachers Utter Discouraging Remarks Every Session.

MNEMONICS: TYPE #3

To make this type of mnemonic, we first need our main points:

1. Union of Germany
2. Industrial revolution in Germany
3. Triple alliance formed between Austria, Hungary, and Italy
4. Dual alliance formed between France and Russia
5. Build up of sea power by Germany with ideas from Admiral Mahan
6. Triple entente was formed by England, France, and Russia

Next we need to go through our main points and select the main word in each:

1. Union
2. Revolution
3. Triple
4. Dual
5. Sea
6. Entente

Then we take the first letter of each word:

U, R, T, D, S, E

With these letters we can form a word or imaginary word, adding other letters if necessary. For example:

TUDERS

T riple
U nion
D ual
E ntente
R evolution
S ea

See if you can remember the main points of the selection from this word:

TUDERS

Test Question: What were some of the causes leading to World War I?

PASSAGE B: THE SPIRIT OF EIGHTEENTH CENTURY PHILOSOPHY

The spirit of the eighteenth-century Enlightenment was drawn from the scientific and intellectual revolution of the seventeenth century, and it carried over the philosophy of natural law and of natural right. Never was there an age so skeptical toward tradition, so confident in the powers of human reason and of science, so firmly convinced of the regularity and harmony of nature, and so deeply imbued with the sense of civilization's advance and progress.

It is often said that the idea of progress is the dominant idea of European civilization from the seventeenth century to the twentieth. It is a belief, a kind of non-religious faith, that the conditions of human life become better as time goes on, that each generation in general is better off than its predecessors and will contribute by its labors to an even better life for generations to come, and that in the long run all mankind will share in the same advance. All the elements of this belief had been present by 1700. It was after 1700, however, that the idea of progress became explicit. In the seventeenth century it had shown itself in a more rudimentary way, in a sporadic dispute, among men of letters in England and France, known as the quarrel of Ancients and Moderns. The Ancients held that the works of the Greeks and Romans had never been surpassed. The Moderns, pointing to science, art, literature, and invention, declared that their own time was the best, that it was natural for men of their time to do better than the ancients because they came later and built upon their predecessors' achievements. The quarrel was never exactly settled, but a great many people in 1700 were Moderns. Europeans had always felt themselves better off than the ancients in being Christians where the ancients were pagans. Now, for the first time in the history of Europe, a great many Europeans felt that in purely worldly ways they had outdone the

noble Greeks and Romans. And many felt that this progress need never cease.

Also far-reaching was the faith of the age in the natural faculties of the human mind. Pure skepticism, the negation of reason, was overcome. Nor were the educated, after 1700, likely to be superstitious, or addicted to magic. The witchcraft mania abruptly died; all sense of the supernatural became dim. Modern people not only ceased to fear the devil; they ceased also to fear God. They thought of God less as a Father than as a First Cause of the physical universe. God was less the God of Love; He was the inconceivably intelligent being who had made the amazing universe now discovered by man's reason. The great symbol of the Christian God was the Cross, on which a divine being had suffered in human form. The symbol which occurred to people of scientific view was the Watchmaker. The intricacies of the physical universe were compared to the intricacies of a watch, and it was argued that just as a watch could not exist without a watchmaker, so the universe as discovered by Newton could not exist without a God who created it and set it moving by its mathematical law. It was almighty intelligence that was thought divine.

The spirit of secularism in Europe was thus promoted. Intellectual developments reinforced social and economic causes in turning people away from the old religion. Churches and churchmen lost out in leadership and prestige. Economics and politics, business and the state, were no longer subordinated to religious ends. They threw off the restraints imposed by moral or religious judgments. At the same time religious toleration spread. Persecution of religious minorities became less common. In any case, in their attempts to enforce acceptance of religious doctrine, churches no longer used the barbaric methods of former times, such as the fagot and the stake. Barbaric methods as used by the state, against

persons suspected or convicted of crimes or political offenses, also came increasingly into disrepute.

The ideas of the Enlightenment were spread through the philosophes. The philosophes were not essentially philosophers in the usual sense of the word. They were rather popularizers or publicists. They read the great books which most people did not read and reworded the ideas in such a way as to hold the interest of the average reader. They were primarily "men of letters." Formerly authors had generally been gentlemen of leisure, or talented proteges of aristocratic or royal patrons, or professors or clerics supported by the income from religious foundations. In the Age of Enlightenment a great many were free-lancers, grub-streeters, or journalists.

They wrote for the reading public which had greatly expanded. The educated middle class, commercial and professional, was much larger than ever before. Country gentlemen were putting off their rustic habits and even noblemen wished to keep informed. Newspapers and magazines multiplied, and people who could not read them at home could read them in coffee houses or in reading rooms organized for that purpose. There was a great demand also for dictionaries, encyclopedias, and surveys of all fields of knowledge. The new readers wanted matters made interesting and clear. They appreciated wit and lightness of touch. From such a public, literature itself greatly benefited. The style of the eighteenth century became admirably fluent, clear, and exact, neither ponderous on the one hand nor frothy on the other. And from writings of this kind the readers benefited also, from the interior of Europe to the America of Benjamin Franklin. The bourgeois middle class was becoming not only educated but thoughtful; this movement was not a class movement only.

Writings of the day were affected by social conditions in another way. They were all written under censorship. The theory of censorship was to protect people from harmful ideas as they were protected from shoddy merchandise or dishonest weights and measures. In England the censorship was so mild as to have little effect. Other countries, such as Spain, had a powerful censorship but few original writers. France, the center of the Enlightenment, had both a complicated censorship and a large reading and writing public. The church, the Parliament of Paris, the royal officials, and the printers' guilds all had a hand in the censoring of books. French censorship, however, was very loosely administered, and after 1750 writers were disturbed by it very little. It cannot be compared to censorship in some countries in the twentieth century. Yet in one way it had an unfavorable effect on French thought and letters. It discouraged writers from addressing themselves, in a common-sense way, to a serious consideration of concrete public questions. Legally forbidden to criticize church or state, they threw their criticisms on an abstract level. Debarred from attacking things in particular, they tended to attack things in general. Or they talked of the customs of the Persians and the Iroqois but not the French. Their works became full of double meanings, sly digs, innuendoes, and jokes, by which an author, if questioned, could declare that he did not mean what all the world knew he did mean. As for readers, they developed a taste for forbidden books, which were always easy enough to obtain through illicit channels. No one wanted to read merely authorized literature, and Parisians who heard that a book was frowned upon by the archbishop or the Parliament could hardly wait to read it and talk about it. Ideas were prized because they were daring, or even merely naughty. French thought was made more radical by the half-way measures used to control it.

MNEMONICS: TYPE #1

The first step in the use of mnemonics is to read the selection and write down the main points to remember. In the selection "The Spirit of Eighteenth Century Philosophy" we would want to remember the ideas that developed during this period of time:

1. Philosophers helped spread enlightenment spirit by translation of the Bible.
2. Emphasized importance of progress of human reasoning
3. Beginning of scientific and intellectual revolution
4. Belief in God was strengthened and superstition overcome
5. Argument between ancient and modern -- greatness of the two
6. Censorship to protect public

To make a mnemonic, we need to first picture the situation in our minds and decide on a symbol rhyming with the corresponding number of the point we want to remember. For example:

1. Philosophers helped spread enlightenment spirit by translation of the Bible.

   PICTURE: The light of knowledge hitting the people through the use of the Bible

   NUMBER: 1

So for our first mnemonic, we can say:

1. Sun

The word "sun" will make us think of light or enlightenment, and we can remember that the philosophers helped to spread enlightenment by translating the Bible.

Next:

2. Emphasized importance of progress of human reasoning.

   PICTURE: Humans realizing they must do something to make progress in reasoning.

   NUMBER: 2

So we can say:

2. Do

The word "do" implies action, and we can remember the action taken to make human reasoning something of importance.

Our third point is:

3. Beginning of scientific and intellectual revolution

PICTURE: People seeing science and using intellect for the first time

NUMBER: 3

So we can say:

3. See

The word "see" will make us think of the people seeing science and using intellect for the first time, and we can remember the beginning of scientific and intellectual revolution.

Our next point is:

4. Belief in God was strengthened and superstition overcome

PICTURE: More and more people believing in God

NUMBER: 4

So we can say:

4. More

The word "more" reminds us that more and more people were believing in God and we can remember that the belief in God was strengthened and superstition overcome.

Next:

5. Argument between ancient and modern -- greatness of the two

PICTURE: Fight between old and new

NUMBER: 5

So we can say:

5. Knive ("Knive" isn't exactly a correct word but we can use any device to help remember)

The word "knive" reminds us of a fight or the argument between ancient and modern.

Our last point is:

6. Censorship to protect public

PICTURE: Someone picking the books to be read

NUMBER: 6

So we can say:

6. Picks

"Picks" will remind us of someone picking books and we can remember censorship to protect the public.

See if you can remember the main points:

1. Sun
2. Do
3. See
4. More
5. Knive
6. Picks

MNEMONICS: TYPE #2

To make a type 3 mnemonic, we first need our main points:

1. Philosophers helped spread enlightenment spirit by translation of the Bible.
2. Emphasized importance of progress of human reasoning.
3. Beginning of scientific and intellectual revolution.
4. Belief in God was strengthened and superstition overcome.
5. Argument between ancient and modern -- greatness of the two.
6. Censorship to protect public.

Next, we need to go through our main points and select the main word in each:

1. Philosophers
2. Reasoning
3. Revolution
4. God
5. Argument
6. Censorship

Then we take the first letter of each word:

P, R, R, G, A C

With these letters we construct a sentence using words beginning with these letters, and adding small words if necessary:

Rancid Rivers Are a Great Plague to Cities

We can then remember the sentence, recall the key words of our outline and remember the main points of the selection.

See if you can remember the main points from this sentence:

Rancid Rivers Are a Great Plague to Cities.

MNEMONICS: TYPE #3

To make a type 3 mnemonic, we first need the main points of the selection:

1. Philosophers helped spread enlightenment spirit by translation of the Bible.
2. Emphasized importance of progress of human reasoning.
3. Beginning of scientific and intellectual revolution.
4. Belief in God strengthened and superstition overcome.
5. Argument between ancient and modern -- greatness of the two.
6. Censorship to protect public.

Next we need to go through our main points and select the main word in each:

1. Philosophers
2. Reasoning
3. Revolution
4. God
5. Argument
6. Censorship

Then we take the first letter of each word:

P, R, R, G, A, C

With these letters we form a word or words, real or imaginary. For example, in this case, we have made an imaginary name:

P. R. CRAG

P. hilosophers
R. reasoning

C ensorship
R evolution
A rgument
G od

See if you can remember the main points of the selection from this imaginary name:

P. R. CRAG

Test Question: Discuss the main ideas of the eighteenth century philosophy and how they were spread among the middle class.

PASSAGE C: IMPERIALISM IN CHINA

The biggest bone of imperialist contention was offered by China. On this bone every Great Power without exception tried to bite. The Manchu dynasty held a suzerainty over the whole area affected by Chinese

civilization, from the mouth of the Amur river to Burma and Indo-China, and from the ocean westward into Mongolia and Tibet. In the old Chinese view China was the world itself, the Middle Kingdom between the upper and nether regions. The Europeans were outlandish barbarians. A few had trickled through to China since the European Middle Ages. But the Chinese people persistently wanted nothing to do with them.

Into this distracted China the Europeans began to penetrate about 1840. It became their policy to extort concessions from the Manchu empire, but at the same time to defend the Manchu empire against internal opposition. This was because they needed some kind of government in China with which they could make treaties, legalizing their claims, and binding upon the whole country.

The modern phase of Chinese relations with the West was inauspiciously opened by the Opium War of 1841. We have observed how, though Europeans wanted Chinese products, the Chinese had no interest in buying European products in return. Trade was difficult, and the British East India Company had for decades solved the problem of getting Chinese tea for Europe by shipping Indian-grown opium in return, since Chinese demand existed for opium. When the Chinese government attempted to control the inflow of opium the British government went to war. Fifteen years later, in 1857, Britain and France combined in a second war upon China, to force the Chinese to receive their diplomats and deal with their traders. The Chinese proving stubborn, 17,000 French and British soldiers entered Peking and deliberately burned the emperor's very extensive Summer Place, an appalling act of vandalism from which soldiers brought back so much loot -- vases, tapestries, porcelain, enamels, jades, wood-carvings -- as to set a fashion in Europe and America for Chinese art.

The treaty of Nanking (1842) arose from the first of these wars, from the second, the treaties of Tientsin (1857), whose terms were soon duplicated in still other treaties signed by China with other European powers and with the United States. The resulting complex of interlocking agreements imposed certain restrictions on China, or conferred certain rights upon foreigners, which came to be known as the "treaty system." To the British in 1842 the Chinese ceded Hong Kong outright. They opened over a dozen cities, including Shanghai and Canton, to Europeans as "treaty ports." In these cities Europeans were allowed to make settlements of their own, immune to all Chinese law. Europeans traveling in the Chinese Empire remained subject only to their own governments, and Europeans and American gunboats began to police the Yangtse river. The Chinese likewise paid large war indemnities, though it was they themselves who suffered most of the damages. They agreed to levy no import duty over 5%, and so became a free trade market for European products. To administer and collect the customs a staff of European experts was introduced. Money from the customs, collected with a new efficiency, on a swelling volume of imports, went in part to the British and French in payment of the indemnities, but part remained with the Manchu government, which the Europeans had no desire to overthrow.

While China was thus permeated by extraterritorial and other insidious privileges for Europeans, much of it was cut away at the outer rim. The Russians moved down the Amur river, established their Maritime Province and founded Vladivostok in 1860. The British annexed Burma in 1886. The French in 1883 assumed a protectorate over Annam despite Chinese protests; they soon combined Annam and other states into a sizable empire in French Indo-China. The Japanese, now sufficiently Westernized to behave like Europeans in such matters, in 1876 recognized the independence of Korea.

These outlying territories had never been integral parts of China proper; but it was with China that they had had their most important political and cultural relations, and to the Chinese Emperor that they had paid tribute.

Japan lost little time in developing an imperialistic urge. An expansionist party already looked to the Chinese mainland and to the south. Japanese imperialism first revealed itself to the rest of the world in 1894, when Japan went to war with China over disputes in Korea. The Japanese soon won, equipped as they were with modern weapons, training and organization. They obliged the Chinese to sign the treaty of Shimoneseki in 1895, by which China ceded Korea, Formosa and the Liaotung Peninsula. The latter was a tongue of land reaching down from Manchuria to the sea; at its tip was Port Arthur. Manchuria was the northeastern part of China itself.

This sudden Japanese triumph precipitated a crisis in the Far East. No one had realized how strong Japan had become. All were astonished that a people who were not "European," i.e., white, should show such aptitude for modern war and diplomacy. It was to be supposed that Japan had designs on Manchuria.

In 1891, Russia had begun to build the Trans-Siberian Railway, whose eastern terminus was to be Vladivostok, the Lord of the East. Manchuria extended northward in a great hump between central Siberia and Vladivostok. The Russians, whether or not they ever dominated Manchuria themselves, could not allow its domination by another Great Power. Germany was at this time looking for a chance to enter the Far Eastern arena, and France had formed an alliance with Russia, whose good will it was eager to retain.

Russia, Germany, and France therefore registered an immediate joint demurrer with the Tokyo Foreign Office. They demanded that Japan give up

the Liaotung Peninsula. The Japanese hesitated, they were indignant, but they yielded. The Liaotung went back to China: Korea and Formosa were retained.

The Chinese government, at last facing the inevitable, began madly to plan Westernization. Huge loans were obtained from Europe -- the customs being pawned as security, following the pattern well established in Turkey, Persia, and Santo Domingo.

The Germans extorted a ninety-nine year lease on Kiachow Bay, plus exclusive rights in the Shantung peninsula. The Russians took a lease on the Liaotung Peninsula from which they had just excluded Japan; they thus obtained Port Arthur, and rights to build railroads in Manchuria to interlock with their Trans-Siberian system. The French took Kwangchow, and the British Wei-hai-wei, in addition to confirming their sphere of influence in the Yangtse Valley. The Italians demanded a share, but were refused. The United States, fearing that all China might soon be parcelled out into exclusive spheres, announced its policy of the Open Door. The idea of the Open Door was that China should remain territorially intact and independent, and that powers having special concessions or spheres of influence should maintain the 5% Chinese tariff and allow business men of all nations to trade without discrimination. The British supported the Open Door, as a means of discouraging actual annexations by Japan or Russia, which, as the only Great Powers adjacent to China, were the only ones that could dispatch real armies into its territory. The Open Door was a program, not so much of leaving China to the Chinese, as of assuring that all outsiders should find it literally "open."

MNEMONICS: TYPE #1

The first step in the use of menmonics is to read the selection and write down the main points to remember. In the selection "Imperialism in China" we would want to remember what imperialistic moves were made in China during the time-span covered:

1. Penetration of China by Europeans seeking trade.
2. Opium War with Great Britain over China's restrictions on opium.
3. Imperialistic moves by Japan, France, and Russia.
4. War with Great Britain because China would not allow British diplomats to enter the country.
5. War with Japan over Korea, Korea ceded to Japan.
6. U. S. set up Open Door Policy to keep other countries or any one country from taking over China.

To make a mnemonic, we need to first picture the situation in our minds and decide on a symbol rhyming with the corresponding number of the point we want to remember. For example:

1. Penetration of China by Europeans seeking trade.

PICTURE: Europeans running all over China looking for goods to to trade

NUMBER: 1

One rhymes with run, so we can say:

1. Run

The word "run" reminds us of the European traders and we can remember that they penetrated China seeking trade.

Next is:

2. Opium War with Great Britain over China's restriction on opium.

PICTURE: War concerning the importation of the drug, opium

NUMBER: 2

Two rhymes with blue, and since opium smoke is blue, we can say:

2. Blue

The word "blue" reminds us of the color of opium smoke, so we can remember that China fought with Great Britain over the restriction that China placed on opium importation.

Our third point is:

3. Imperialistic moves by Japan, France, and Russia

PICTURE: Three countries trying to take over Chinese territories.

NUMBER: 3

Because we have the names of three countries, we can simply say:

3. Three

The word "three" will tell us there are three countries involved and we will remember Japan, France, and Russia.

Next:

4. War with Great Britain because China would not allow British diplomats into the country.

PICTURE: Angry British diplomats turned away by the Chinese

NUMBER: 4

Four rhymes with sore, so we can say:

4. Sore

The word "sore" reminds us that the British were "sore" at the Chinese for turning away English diplomats.

Our fifth point is:

5. War with Japan over Korea, Korea ceded to Japan

PICTURE: Japanese trying to win Korea

NUMBER: 5

Five rhymes with connive, so we can say:

5. Connive

The Japanese were "conniving" to get Korea and succeeded by fighting a war with China.

Last is:

6. U.S. set up the Open Door Policy to keep other countries or any one country from taking over China.

PICTURE: U.S. "fixing" the situation with the open door policy

NUMBER: 6

Six rhymes with fix, so we can say:

6. Fix

The U. S. "fixed" China's problem by making the Open Door Policy.

See if you can remember the main points of the selection by using these mnemonics:

1. Run
2. Blue
3. Three
4. Sore
5. Connive
6. Fix

MNEMONICS: TYPE #2

To make a type 2 mnemonic, we first need our main points of the selection:

1. Penetration of China by Europeans seeking trade.
2. Opium War with Great Britain over China's restrictions on opium.
3. Imperialistic moves by Japan, France, and Russia.
4. War with Great Britain because China would not allow British diplomats to enter the country.
5. War with Japan over Korea; Korea ceded to Japan.
6. U.S. set up Open Door Policy to keep other countries or any one country from taking over China.

Next we need to go through our main points and select the main word or words in each:

1. Penetration
2. Opium
3. Japan, France, Russia
4. Diplomats
5. Korea
6. Policy

Then we take the first letter of each word:

P, O, J, F, R, D, K, P

With these letters, we construct a sentence using words beginning with these letters and adding small words if necessary:

People Often Find Robert Jones A Kind, Dependable Person.

See if you can recall the main points of the selection from this sentence:

People Often Find Robert Jones A Kind, Dependable Person.

MNEMONICS: TYPE #3

To make a type 3 mnemonic, we first need the main points of the selection:

1. Penetration of China by Europeans seeking trade.
2. Opium War with Great Britain over China's restriction on opium.
3. Imperialistic moves by Japan, France, and Russia.
4. War with Great Britain because China would not allow British diplomats in the country.
5. War with Japan over Korea, Korea ceded to Japan.
6. U. S. set up the Open Door Policy to keep other countries or any one country from taking over China.

Next we choose the most important word from each point:

1. Penetration
2. Opium
3. Japan, France, and Russia
4. Diplomats
5. Korea
6. Policy

Then we take the first letter of each word:

P, O, J, F, R, D, K, P

With these letters we construct a word, or words, real or imaginary, adding other letters if necessary. For example:

POD OR FLAPJACK

P enetration
O pium
D iplomats

O
R ussia

F rance
L
A
P olicy
J apan
A
C
K orea

See if you can remember the main words, and the main points of the selection from these words:

POD OR FLAPJACK

Test Question: Discuss how imperialism led to the Chinese loss of control over their own territories.

PASSAGE D: LOUIS XIV: ADMINISTRATION AND GOVERNMENT

Possibly the most fundamental step taken by Louis XIV was to assure himself of control of the army. Armed forces had formerly been almost a private enterprise. Mercenaries, specialists in fighting, leading their own troops, worked for governments more or less as they chose, either in return for money or to pursue political aims of their own. In Central Europe, and even in France great noblemen had strong private influence over the troops, and in times of disorder nobles led armed retainers about the country. These fighters, provided with a general commission and with funds by some government, recruited, trained and eqipped their own regiments, and likewise fed and supplied them, often by preying upon bourgeois and peasants in the vicinity. In these circumstances it was often difficult to say on whose side soldiers were fighting. It was hard for governments to set armies into motion, and equally hard to make them stop fighting, for commanders fought for their own interests and on their own momentum. War was not a "continuagion of policy"; it was not an act of the state; it easily degenerated, as in the Thirty Years' War, into a kind of aimless and perpetual violence.

Louis XIV made war an activity of state. He made all armed persons in France fight only for him. Peace and order was thus produced in France, while strengthening the fighting power of France against other states. Under the older conditions there was also little integration among different units and arms of the army. Infantry regiments and troops of horse went largely their own way, and the artillery was supplied by civilian technicians under contract. Louis XIV created a stronger unity of control, put the artillery organically into the army, systematized the military ranks and grades, and clarified the chain of command, placing himself at the top. The government supervised recruiting, required colonels to prove that

they were maintaining the proper number of soldiers, and assumed most of the responsibility for equipping, provisioning, clothing and housing the troops. Higher officers, since they were dependent on the government, were subjected to discipline. The soldiers were put into uniforms, taught to march in step, and housed in barracks; thus they too became more susceptible to discipline and control. Armed forces became less of a terror to their own people, and a more effective weapon in the hands of the government. They were employed usually against other governments, but if necessary to suppress rebellion at home. Louis XIV also increased the French army in size, raising it from about 100,000 to about 400,000. These changes, both in size and in degree of government control, were made possible by the growth of a large civlian administration. The heads of this administration under Louis XIV were civilians. They were in effect the first ministers of war, and their assistants, officials, inspectors, and clerks constituted the first organized war ministry.

Louis XIV preferred to use men of the bourgeois class. For positions in the government, they were dependent on him for salaries and careers, and unlike noblemen, could aspire to no independent political influence of their own. He never called the Estates-General, which in any case no one except some of the nobility wanted. He allowed to remain functioning some of the Provincial Estates, because of local and aristocratic pressures. He temporarily destroyed the independence of the parliaments, commanding them to accept his orders. He stifled the old liberties of the towns, turning their civic offices into empty and purchasable honors, and likewise regulating the operation of the gilds. He developed a strong system of administrative coordination, centering in a number of councils of state, which he attended in person, and in "intendants" who represented these councils throughout the country. Councillors of state and intendants were generally

of bourgeois origin. Each intendant, within his district, embodied all aspects of the royal government, supervising the flow of taxes and recruiting of soldiers, keeping an eye on the local nobility, dealing with towns and gilds, controlling the more or less hereditary office-holders, stamping out bandits, smugglers and wolves, policing the market places, relieving famine, watching the local law courts and often deciding cases himself. In this way a firm and uniform administration was superimposed upon the heterogeneous mass of the old France. In contrast to England, all local questions were handled by agents of the central government, usually honest and often efficient, but essentially bureaucrats constantly instructed by, and referring back to, their superiors at Versailles.

The king needed a good deal of money to support the reorganized and enlarged army, the panoply of Versailles, and the growing civil administration. Finance was the weak spot in the French monarchy. Methods of tax collecting were costly and inefficient. Direct taxes passed through the hands of many intermediate officials; indirect taxes were collected by private concessionnaires called tax-farmers, who made a substantial profit. The state always received far less than what the taxpayers actually paid. But the main weakness arose from an old bargain between the French crown and nobility; the king might raise taxes without consent if only he refrained from taxing the nobles. Only the "unprivileged" classes paid direct taxes, and these came almost to mean the peasants only, since many bourgeois in one way or another obtained exemptions. The system was outrageously unjust in throwing the tax burden on the poor and helpless. It was ruinous to the government, since the government could never raise enough money, however hard it taxed the poor, being unable to tap the real source of ready wealth, namely the wealthier people. It was ruinous also

to the French nobility, who in paying no direct taxes lost their hold over the government, lacked incentive to interest themselves in public affairs, and were unable to assume leadership of the bulk of the population. Louis XIV was willing enough to tax the nobles, but was unwilling to fall under their control, and only toward the close of his reign, under extreme stress of war, was he able, for the first time in French history, to impose direct taxes on the aristocratic elements of the population. This was a great step toward equality before the law and toward sound public finance, but so many concessions and exemptions were won by nobles and bourgeois that the reform lost much of its value.

Louis resorted to all manner of expedients to increase his revenues. He raised the tax-rates, he devaluated the currency. He sold patents of nobility to ambitious bourgeois. He sold government offices, judgeships, and commissions in the army and navy. For both financial and political reasons the king used his sovereign authority to annul the town charters, then sell back reduced rights at a price; this produced a little income but demoralized local government and civic spirit. The need for money, arising from the fundamental inability to tax the wealthy, which in turn reflected the weakness of absolutism, of a government which would not or could not share its rule with the propertied classes, corrupted much of the public life and political aptitude of the French people.

If only for his own purposes, Louis XIV wished to make France economically powerful. His great minister Colbert worked for twenty years to do so. Colbert went beyond Richelieu in the application of mercantilism, aiming to make France a self-sufficing economic unit and to increase the wealth from which taxes were drawn. He managed to abolish local tariffs in a large part of Central France, where he set up a tariff-union oddly entitled

the Five Great Farms (since the remaining tolls were collected by tax-farmers); and to do away with all internal tariffs, the area of the Five Great Farms was in itself one of the largest free-trade areas in Europe, being about the size of England. Colbert promulgated a Commerical Code for the convenience of business men, replacing much of the local customary law, and long a model of business practice and business regulation. He improved communications by building roads and canals, of which the most famous was one joining the Bay of Biscay with the Mediterranean. Working through the gilds, he required the handicraft manufacturers to produce goods of specified kind and quality, believing that foreigners, if assured of quality by the government, would purchase French products more freely. He gave subsidies, tax exemptions, and other privileges to expand the manufacture of silks, tapestries, glassware, and woolens. He helped to found colonies, built up the navy, and established the French East India Company. Export of some goods, notably foodstuffs, was forbidden, for the government wished to keep the populace quiet by holding down the price of bread. Export of other goods, mainly manufactures, was encouraged, partly as a means of bringing money into the country, where it could be funneled into the royal treasury. The growth of the army, and the fact that under Louis XIV the government clothed and equipped the soldiers, and hence placed unprecedentedly large orders for uniforms, overcoats, weapons, and ammunition, greatly stimulated the employment of weavers, tailors and gun-smiths, and advanced the commercial capitalism by which such labors were organized. In general, trade and manufacture developed in France under more direct government guidance than in England. They long gave the English an extremely brisk competition. Not until the age of iron and coal did France begin economically to lag.

MNEMONICS: TYPE #1

The first step in the use of mnemonics is to read the selection and write down the main points to remember. For example in this selection, we would want to remember what actions Louis XIV took when he was in power.

1. Took control of the army
2. Used men of the bourgeois class for government offices
3. Made war an activity of state
4. Devalued currancy
5. Made only peasants pay direct taxes
6. Had Colbert as minister

To make a mnemonic, we need to first picture the situation in our minds and decide on a symbol rhyming with the corresponding number of the point we want to remember. For example:

1. Took control of the army

PICTURE: An army with soldiers and guns

NUMBER: 1

One rhymes with gun, so we can say:

1. Gun

The word "gun" would bring the picture of "army" to our minds and we can remember that Louis XIV took control of the army.

Our next main point is:

2. Used men of the bourgeois class for government offices

PICTURE: A few men ruling at a time when most of the people were peasants; the middle class holding government offices.

NUMBER: 2

Two rhymes with few, so we can say:

2. Few

The word "few" would remind us of the few men ruling over many peasants and we can remember that Louis XIV used men of the bourgeois class for government offices.

Next:

3. Made war an activity of state

PICTURE: The armies could fight only for the state, freed country of trivial wars, made peace in France

NUMBER: 3

Three rhymes with free, so we could say:

3. Free

The word "free" reminds us of freeing France from trivial wars and bringing peace, so we remember that Louis XIV made war an activity of state.

The fourth point is:

4. Devalued currancy

PICTURE: More money, but each dollar worth less

NUMBER: 4

Four rhymes with more, so we can say:

4. More

The word "more" will bring to mind that Louis XIV made more money, but each dollar was worth less. He devalued the currancy.

Our fifth point is:

5. Made only peasants pay direct taxes

PICTURE: The poor people, deprived of their money

NUMBER: 5

Five rhymes with deprive, so we can say:

5. Deprive

The word "deprive" reminds us of the peasants, so we can remember that Louis XIV made only the peasants pay taxes.

Next and last:

6. Had Colbert as Minister

PICTURE: Colbert did much to help France as Minister

NUMBER : 6

Six rhymes with fix, so we can say:

6. Fix

The word "fix" makes us think of repairing or helping, so we can remember that Louis XIV had Colbert as Minister.

See if you can remember the main points on your own:

1. Gun
2. Few
3. Free
4. More
5. Deprive
6. Fix

MNEMONICS: TYPE #2

To make a type 2 mnemonic we first need our main points of the selection:

1. Took control of the army
2. Used men of the bourgeois class for government offices
3. Made war an activity of state
4. Devalued currancy
5. Made only peasants pay direct taxes
6. Had Colbert as Minister

Next we need to go through our main points and select the main word in each:

1. Army
2. Bourgeois
3. War
4. Devalued
5. Peasants
6. Colbert

Then we take the first letter of each word:

A, B, W, D, P, C

With these letters we construct a sentence using words beginning with these letters and adding small words if necessary:

A Bitter Word Depresses A Person Considerably

We can then remember the sentence, recall the main words of our outline and remember the main points of the selection.

See if you can recall the main points of the selection from this sentence:

A Bitter Word Depresses A Person Considerably.

MNEMONICS: TYPE #3

To make a type 3 mnemonic, we first need the main points of the selection:

1. Took control of the army
2. Used men of the bourgeois class for government offices
3. Made war an activity of state
4. Devalued currancy
5. Made only peasants pay taxes
6. Had Colbert as Minister

Next we choose the important word from each point:

1. Army
2. Bourgeois
3. War
4. Devalued
5. Peasants
6. Colbert

Then we take the first letter of each word:

A, B, W, D, P, C

With these letters we construct a word, real or imaginary, adding other letters if necessary. For example:

BAWDY PIC

B ourgeois
A rmy
W ar
D evalued
Y

P easants
I
C olbert

See if you can remember the main words and main points of the selection from these words:

BAWDY PIC

Test Question: Discuss the steps taken by Louis XIV in achieving absolutistic rule in France.

PASSAGE E: OUTCOME OF THE PEACE OF WESTPHALIA, 1648

In 1644 in Westphalia, at the towns of Munster and Osnabruck, peack talks began. The German states were asking for peace, for a final religious settlement, and for changes in the Holy Roman Empire. France and Sweden argued that the German states should individually take part in the negotiations, a disintegrating principle that the German princes welcomed and which the Emperor resisted. Hundreds of diplomats and negotiators, repre-

senting the Empire, its member states, Spain, France, Sweden, the Dutch, the Swiss, the Portuguese, the Venetians, many other Italians, and the pope came to Westphalia. Not since the Council of Constance had there been such a European congress. The fact that a European assemblage had in 1415 dealt with affairs of the church, and now in the 1640's dealt with affairs of state, war and power, was a measure of the secularization that had come over Europe. The papal nuncio was hardly listened to at Westphalia, and the pope did not sign the treaties.

Negotiations dragged on. The armies were still fighting, and after each battle one side or the other raised its terms. France and Spain refused to make peace with each other under any circumstances, and war between them continued until 1659. However, for the Holy Roman Empire a settlement was agreed to and incorporated in 1648 as the Peace of Westphalia.

It represented a general checkmate to the Counter Reformation in Germany, and not only renewed the terms of the Peace of Augsburg, granting each German state the right to determine its own religion, but it added Calvinism to Lutheranism and Catholicism as an acceptable faith. The Protestants won a complete victory on the issue of church territories secularized after 1552. The lands were to remain in the possession of those who held them in 1624, before the Edict of Restitution.

The dissolution of the Holy Roman Empire had been advanced by the drawing of internal religious frontiers in the days of Luther, and was now confirmed in politics and international law. The Dutch and Swiss ceased to belong to it, and became recognized as sovereign and independent. The Dutch were confirmed in their conquest of both banks of the lower Scheldt, the closure of that river to ocean-going vessels, and hence the commercial destruction of Antwerp. They likewise received from Portugal the right to have outposts in Brazil and Indonesia.

The French cut off small pieces from the disintegrating western frontier of the Holy Empire, and received sovereignty over three Lorraine bishoprics, which they had occupied for a century, and certain rights in Alsace which were so confused that they later led to trouble. The king of Sweden received the bishoprics of Bremen and Verden and the western half of Pomerania, including the city of Stettin. Thus Sweden added to its trans-Baltic possessions. Non-Germans controlled the mouths of the imperial rivers, the Oder, Elbe, and Weser by Sweden, the Rhine and the Scheldt by the Dutch. Brandenburg received eastern Pomerania, the large archbishopric of Magdeburg and two smaller bishoprics, while Bavaria obtained part of the Palatinate and a seat in the Electoral College, so that the Empire now had eight Electors.

The greatest victory of the French and their Swedish and Dutch allies was to be found, not in territorial changes, but in the new constitution of the Empire itself. The three hundred plus German states became virtually sovereign, and received the right to conduct diplomatic relations and make treaties with foreign powers. It was further stipulated in the Peace of Westphalia that no laws could be made by the Empire, no taxes raised, no soldiers recruited, no war declared or peace terms ratified except with the consent of the imperial estates, the three-hundred-odd princes, ecclesiastics, and free cities in the Reichstag assembled. Since it was well known that agreement on any such matters was impossible, the principle of self-government, or of medieval constitutional liberties, was used to destroy the Empire itself as an effective political entity. While most other European countries were consolidating under royal absolutism, Germany sank back into "feudal chaos." A constitution for Germany was written into an international treaty, and German states' right became part of European public law. France and Sweden were made guarantors of the Peace of Westphalia.

Though Sweden soon became too weak to exercise the right effectively, France enjoyed a legal basis for intervention in Central Europe for a century and a half.

The Peace of Westphalia not only blocked the Counter Reformation, and frustrated the Austrian Hapsburgs, and forestalled for almost two centuries any movement toward German unification, but it also marked the advent in international law of the modern European system of sovereign states. The diplomats who assembled at Westphalia represented independent powers which recognized no superior or common tie. No one any longer pretended that Europe had any significant unity -- religious, political, or other. Statesmen delighted in the absence of any such unity, in which they sensed the menace of "universal monarchy." Europe was understood to consist of unconnected sovereignties, free and detached states, which moved about according to their own laws, following their own political interests, forming and dissolving alliances, exchanging embassies and legations, alternating between war and peace, shifting position with a shifting balance of power.

The Thirty Years' War physically wrecked Germany. Cities were sacked by mercenary soldiers with a rapacity that their commanders could not control, or the commanders themselves systematically looted whole areas to maintain their armies. Magdeburg was besieged ten times, and Leipzig five. Even revised modern estimates allow that in many extensive parts of Germany as much as a third of the population may have perished. The effects of fire, disease, undernourishment, homelessness, and exposure in the seventeenth century were the more terrible because of the lack of means to combat them. Already physically wrecked, Germany was cut into small pieces and ceased for a long time to play any part in European affairs. In Central Europe, there existed a type of political and cultural vacuum. On

the one hand, the western or Atlantic peoples -- French, English, Dutch -- began in the seventeenth century to take the lead in European affairs. On the other hand, in eastern Germany, around Berlin and Vienna, new and only half-German power-complexes began to form. These themes will be traced in later chapters.

MNEMONICS: TYPE #1

The first step in the use of mnemonics is to read the selection and write down the main points to remember:

1. Change in the Holy Roman Empire
2. Germans had right to determine own religion
3. Dutch, Swiss, and French independent of Empire
4. Adoption of new constitution
5. Blocked counter-reformation
6. Lack of unity between European countries

To make a mnemonic, we need to first picture the situation in our mind and decide on a symbol that rhymes with the corresponding number of the point we want to remember. For example:

1. Change in the Holy Roman Empire

   PICTURE: A stunning change in the Holy Roman Empire

   NUMBER: 1

So we can say:

1. Stun

The word "stun" will remind us of change and we will think of the Holy Roman Empire.

Next is:

2. Germans had right to establish own religion

   PICTURE: Germans could choose own religion

   NUMBER: 2

So we can say:

2. True

The word "religion" is usually associated with truth, so we can remember that the Germans could determine their own religion.

Our third point is:

3. Dutch, Swiss, and French independent of Empire

PICTURE: These countries free of the Empire

NUMBER: 3

So we can say:

3. Free

The word "free" will remind us that the Dutch, Swiss, and French were independent of the Empire.

Our fourth point is:

4. Adoption of a new constitution

PICTURE: The hard task of making a new constitution

NUMBER: 4

So we can say:

4. Chore

The word "chore" will remind us of the hard task of making a new constitution.

Next is:

5. Blocked counter-reformation

PICTURE: The Peace of Westphalia would not allow counter-reformation

NUMBER: 5

So we can say:

5. Deprive

The word "deprive" reminds us that the Peace of Westphalia deprived the Hapsburgs of the Reformation.

Our last point is:

6. Lack of unity between European countries

PICTURE: Each country on her own, no unity

NUMBER: 6

So we can say:

6. Mix

The word "mix" reminds us of a mix-up or of a lack of unity, so we can remember that there was a lack of unity between European countries.

See if you can remember the main points of the selection by these words:

1. Stun
2. True
3. Free
4. Chore
5. Deprive
6. Mix

MNEMONICS: TYPE #2

To make a type 2 mnemonic, we first need our main points of the selection:

1. Change in the Holy Roman Empire
2. Germans had right to determine own religion
3. Dutch, Swiss, and French independent of Empire
4. Adoption of new constitution
5. Blocked counter-reformation
6. Lack of unity between European countries

Next we need to go through our main points and select the main word or words in each:

1. Change
2. Religion
3. Independent
4. Constitution
5. Reformation
6. Lack

Then we take the first letter of each word:

C, R, I, C, R, L

With these letters we construct a sentence using words beginning with these letters and adding small words if necessary:

Change In Rules Can Lead to Rebellion

We can then remember the sentence, recall the important words of our outline and remember the main points of the selection. See if you can remember the main points from this sentence:

Change In Rules Can Lead to Rebellion

MNEMONICS: TYPE #3

To make a type 3 mnemonic we first need the main points of the selection:

1. Change in the Holy Roman Empire
2. Germans had right to determine own religion
3. Dutch, Swiss, and French independent of Empire
4. Adoption of new constitution
5. Blocked counter reformation
6. Lack of unity between European countries

Next we choose the most important word from each point:

1. Change
2. Religion
3. Independent
4. Constitution
5. Reformation
6. Lack

Then we take the first letter of each word:

C, R, I, C, R, L

With these letters we construct a word, or words, real or imaginary, adding other letters if necessary. For example:

CIRCLER

C hange
I ndependent
R eligion
C onstitution
L ack
E
R eformation

See if you can remember the main words and the main points of the selection from this word:

CIRCLER

Test Question: Which results of the Peace of Westphalia decreased the political control of the Catholic church over the states of Europe?

PASSAGE F: CAUSES AND EFFECTS OF THE INDUSTRIAL REVOLUTION

From the beginning of history until about 1800, the work of the world was done with hand tools, since then it has been increasingly done by machines. Before about 1800 power was supplied by human or animal muscle, reinforced by levers or pulleys, and supplemented by the force of running

water or moving air. Since 1800, power has been supplied by the human manipulation of more natural forces found in steam, electricity, the combustion of gases, and recently within the atom. The process of shifting from hand tools to power machinery is what is meant by the Industrial Revolution. Its beginnings cannot be dated exactly. It grew gradually out of the technical practices of earlier times. It is still going on, for in some countries industrialization is just beginning, and even in the highly developed it is still making advances. It will in all probability continue long into the future, until some distant time when Chinese peasants plow their fields with tractors or Bolivian Indians ride in some futuramic sort of pullmans. But the first country to be affected by industrialization was Great Britain, where its effects became manifest in the half-century following 1780.

It seems likely that people are habitually quite conservative, despite the emphasis placed on revolutionary upheavals by historians. Working men do not put off their old way of life, move to strange and overcrowded towns, or enter the deadly rounds of mine and factory except under strong incentive. Well-to-do people, living in comfort on assured incomes, do not risk their wealth in new and untried ventures except for good reason. The shifting to modern machine production requires in any country a certain mobility of people and of wealth. Such mobility may be produced by state planning, as in the industrialization of the Soviet Union in recent times. In England a high degree of social mobility existed in the eighteenth century in consequence of a long historical development.

The ascendancy of Parliament over the king, confirmed by the English revolution of 1688, meant in economic terms the ascendancy of the more well-to-do property-owning classes. Among these the landowners were by far the most important, though they counted the great London merchants among their

allies. For a century and a half, from 1688 to 1832, the British government was substantially in the hands of these landowners -- the "squirearchy" or "gentlemen of England." The result was a thorough transformation of farming, an Agricultural Revolution without which the Industrial Revolution could not have occurred.

Seeking to increase their money incomes, many landowners began experimenting with improved methods of cultivation and stock-raising. They made more use of fertilizers (mainly animal manure); they introduced new implements (such as the "drill seeder" and "horse-hoe"); they brought in new crops, such as turnips, and a more scientific system of crop rotation; they attempted to breed larger sheep and fatter cattle. An improving landlord needed full control over his land to introduce such changes successfully. He saw a mere barrier to progress in the old village system of open fields, common lands, and semi-collective methods of cultivation. Improvement also required an investment of capital, which was impossible so long as the soil was tilled by numerous poor and custom-bound small farmers.

Only an act of Parliament could modify or extinguish the old common rights of the villagers which were part of the common law. It was the great landowners who controlled Parliament, which therefore passed hundreds of "enclosure acts," authorizing the enclosure, by fences, walls, or hedges, of the old common lands and unfenced open fields. Land thus came under a strict regime of private ownership and individual management. At the same time small owners sold out or were excluded in various ways, the more easily since the larger owners had so much local authority as justices of the peace. More than anywhere else in central Europe, ownership of land in England became concentrated in the hands of a relatively small class of substantial farmers. This development reached its height during the Napoleonic wars.

The productivity of land and of farm labor as a result was greatly raised. Fatter cattle yielded more meat, more assiduous cultivation yielded more cereals. The food supply of England was increased, while a smaller percentage of the population was needed to produce it. Labor was thus released for other pursuits. The yeomanry, or small landowners -- the "bold peasantry" -- disappeared as a class. The greater number of English country people became wage laborers, working as hired men for the farmers and landlords, or spinning or weaving in their cottages for merchants in the towns. The English working man (and woman) was dependent on daily wages long before the coming of the factory and the machine. English working people became mobile; they would go where the jobs were, or where the wages were slightly higher. They became also available, in that fewer of them were needed on the land to produce food. Such conditions hardly obtained except in Great Britain. On the Continent agricultural methods were less productive, and the rural workers were more established on the soil, whether by institutions of serfdom as in eastern Europe, or by the possession of property or firm leaseholds as in France.

As the Agricultural Revolution ran its course in the eighteenth century and into the nineteenth, the British had conquered a colonial empire, staked out markets all over the Americas and Europe, built up a huge mercantile marine, and won command of the sea. The profit motive prompted the search for more rapid methods of production. The old English staple export, woollen cloth, could be marketed indefinitely if only more of it could be woven. The possibilities in cotton cloth were enormous. The taste of Europeans for cottons had been already formed by imports from Asia. By hand methods Europeans could not produce cotton in competition with the East. But the market was endless if cotton could be spun, woven, and printed with less labor, i.e., by machines. Capital was

available, mobile and fluid, because of the rise of banking, credit, and stock companies. Funds could be shifted from one enterprise to another. Wealthy landowners could divert some of their profits to industry. If an invention proved a total loss, as sometimes happened, or if it required years of development before producing any income, still the investment could be afforded. Only a country already wealthy from commerce and agriculture could have been the fist to initiate the machine age. England was such a country.

By these conditions were induced a series of successful inventions in the textile industry. In 1733 a man named John Kay invented the fly shuttle, by which only one man instead of two was needed to operate a loom. The resulting increase in the output of weaving set up a strong demand for yarn which was met in the 1760's by the invention of the spinning jenny, a kind of mechanized spinning wheel. The new shuttles and jennies were at first operated by hand and used by domestic workers in their homes. But in 1769 Richard Arkwright patented the water-frame, a device for the multiple spinning of many threads. In the 1780's Arkwright introduced the steam engine to drive his spinning machinery. Thus reqiring a considerable installation of heavy equipment, he gathered his engines, frames, and workers into large and usually dismal buildings, called "mills" by the English, or "factories" in subsequent American usage. Mechanical spinning now for a time overwhelmed the hand weavers with yarn. This led to the development of the power loom, which became economically practicable shortly after 1800. Weaving as well as spinning was therefore done increasingly in factories.

The Industrial Revolution in Great Britain in its early phase, down to 1830 or 1840, took place principally in the manufacture of textiles, with accompanying developments in the exploitation of iron and coal. The

early factories were principally textile factories, and indeed mainly cotton mills; for cotton was an entirely new industry to Europe, and hence easily mechanized whereas the long established woollen trade, in which both employers and workers hesitated to abandon their customary ways, was mechanized more slowly. The suddenness of the change must not be exaggerated. It is often said that the Industrial Revolution was not a revolution at all. As late as the 1830's only a small fraction of the British working people were employed in factories. But the factory and the factory system were even then regarded as the coming mode of production, destined to grow and expand, mighty symbols of the irresistible march of progress.

MNEMONICS: TYPE #1

The first step in the use of mnemonics is to read the selection and write down the main points to remember. For example, in this selection we would have the following main points to remember:

1. Shift from hand tools to power machinery
2. Began in England with the Parliament taking power from the king
3. Enclosure Acts released peasants (labor) for other pursuits other than farming
4. Increase in markets demanded more rapid methods
5. England had enough wealth to invest in industry
6. Revolution began principally in the manufacture of textiles

To make a mnemonic, we need to first picture the situation in our mind and decide on a symbol rhyming with the corresponding number of the point we want to remember. For example:

1. Shift from hand tools to power machinery

PICTURE: Change from doing things by hand to doing them by machinery

NUMBER: 1

So we can say:

1. From

The word "from" will remind us of the shift from doing things by hand to doing them by machines.

Our next point is:

2. Began in England with the Parliament taking power from the King

PICTURE: A new more powerful Parliament

NUMBER: 2

So we can say:

2. New

The word "new" will remind us of the new Parliament and we can remember that the Industrial Revolution began in England with Parliament taking power from the King.

Next:

3. Enclosure Acts released peasants (labor) for other pursuits other than farming.

PICTURE: Peasants were freed from farming

NUMBER: 3

So we can say:

3. Free

The word "free" will make us think of the peasants and we can remember that the Enclosure Acts freed the peasants for other pursuits other than farming.

Our fourth point is:

4. Increase in markets demanded more rapid methods

PICTURE: More markets, needed more goods

NUMBER: 4

Then we can say:

4. More

The word "more" will make us think of more markets, so we can remember that the increase in markets demanded more rapid methods.

Fifth is:

5. England had enough wealth to invest in industry

PICTURE: England had enough wealth to keep interest in industry alive.

NUMBER: 5

So we can say:

5. Alive

The word "alive" will remind us that England had enough wealth to invest in industry so the interest in industry is kept alive.

Our last point is:

6. Revolution began principally in the manufacture of textiles

PICTURE: Cottons, linens

NUMBER: 6

So we can say:

6. Wicks

"Wicks" are made of cloth, so we can think of the revolution beginning principally in the manufacture of textiles.

See if you can remember the main points of this selection from these words:

1. From
2. New
3. Free
4. More
5. Alive
6. Wicks

MNEMONICS: TYPE #2

To make a type 2 mnemonic, we first need our main points of the selection:

1. Shift from hand tools to power machinery
2. Began in England with the Parliament taking power from the King
3. Enclosure Acts released peasants (labor) for other pursuits
4. Increase in markets demanded more rapid methods
5. England had enough wealth to invest in industry
6. Revolution began principally in the manufacture of textiles

Next we need to go through our main points and select the main word or words in each:

1. Shift
2. England
3. Acts
4. Markets
5. Wealth
6. Textiles

Then we take the first letter of each word:

S, E, A, M, W, T

With these letters, we construct a sentence using word beginning with these letters and adding small words if necessary:

They Are Sure Ed Means Well.

See if you can recall the main points of the selection from this sentence:

They Are Sure Ed Means Well

MNEMONICS: TYPE #3

To make a type 3 mnemonic, we first need the main points of the selection:

1. Shift from hand tools to power machinery
2. Began in England with the Parliament taking power from the King
3. Enclosure Acts released peasants (labor) for other pursuits
4. Increase in markets demanded more rapid methods
5. England had enough wealth to invest in industry
6. Revolution began principally in the manufacture of textiles

Next we choose the most important word from each point:

1. Shift
2. England
3. Acts
4. Markets
5. Wealth
6. Textiles

Then we take the first letter of each word:

S, E, A, M, W, T

With these letters we construct a word, or words, real or imaginary, adding other letters if necessary. For example:

WET SAM

W ealth
E ngland
T extiles

S hift
A cts
M arkets

See if you can remember the main words, and the main points of the selection from these words:

WET SAM

Test Question: Why did the Industrial Revolution begin in England?